Research Article

NEW STANDARD PRACTICE OF THE AIRPORT OPERATIONS FOR THAILAND DURING THE OUTBREAK OF CORONAVIRUS DISEASE 2019 (COVID-19)

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ABSTRACT

Airlines and airports are experiencing an unprecedented challenge from the outbreak of Coronavirus Disease 2019. The research aims to 1) explore the practice of airport operations during the COVID-19 pandemic, 2) compare the views of passengers and frontline personnel on the new standard practice of airport operations, and 3) propose the new standard procedures for airport operations. This study employed mixed methods, mainly a survey, supplemented by an in-depth interview for robustness. The sample comprised 150 frontline employees who work at the airport, including airline staff, airport workers, retail employees, and the personnel of service providers. Moreover, 150 customers have experience using the airports during the COVID-19 pandemic. Key findings and analyses revealed that the new standard practice for airport operations comprises four factors: technology, environmental conditions, services, and operations. The hygiene environment and non-touch technologies such as using biometric solutions for border clearance, self-boarding passes, baggage scanners, and intelligent tags and RFID make passengers confident that the airport's area is safe and free from coronavirus infection.

Keywords: New Standard Practice, Airport Operations, Passenger Process, COVID-19 Outbreak

INTRODUCTION

In March 2020, World Health declared the COVID-19 pandemic, leading the people's ways of life have changed, especially those who work at the airport or travel by air. Many airlines and airports are facing challenges due to the unprecedented lockdowns from the government. Some airlines were forced to ground their entire fleets (Airport Council International [ACI], 2021). Since the COVID-19 outbreak started, more than 6.4 million people have died from the coronavirus pandemic (Worldometers, 2022). Along with the human tragedy, the COVID19 epidemic has also resulted in massive damage to the holistic economy, health, trade, education, and logistics. A norm of people, social, and industry practice was disrupted. The new normal of people's health, safety, and well-being lifestyle has risen. The public areas are now zones of coronavirus infection and transmission. Airports need to be concerned and provide safety measures to ensure the passengers and employees at the airports are free from infection. Many airports present strict measures because they are the primary area of passengers from widely different places. In comparison, passengers may be aware of how much risk between the destination and origin (Ebo, 2019; Lunna, 2021).

There is limited theory generated for how to plan for circumstances of uncertainty, and there are few decision-making concepts on how to respond to these crises (Parcell, 2020). The COVID-19 pandemic has generated global change; thus, decision-makers are responsible for identifying solutions to the problem. With shifts in airport customer priorities and increased focus on specific areas in a post-COVID-19 world, airports need to immediately adapt to bring existing passengers back to the airports, fulfilling confidence in both business and leisure travelers that airport processes are safe, and enhance employees' confidence when returning to work (Marketsandmarkets, 2020). There are some constraints when using non-touch interfaces because users may have difficulty recognizing the system involved (Henschke, 2020). Dixon and group have examined five existing orthodoxies in the airport passenger experience challenged by the COVID-19 pandemic. Five current orthodoxies refer to 1) Passenger processing: Not only concern with speed but also cleanliness is a key. 2) Self-service: Non-touch dominates. 3) Biometric enablement: Accelerated implementation in a non-touch world. 4)

Employee well-being: Focusing on health and safety. 5) Flexible service delivery: to accommodate less-than-straight-line ramp-up (Dixon et al., 2021; Tavakol & Sandars, 2014; Ware, 2019).

RESEARCH OBJECTIVES

1) To explore the practice of an airport operation during the COVID-19 pandemic.

2) To compare the views of passengers and frontline personnel on the new standard practice of airport operations.

3) To propose the new standard procedures for airport operations.

LITERATURE REVIEW

1. Airport operations and strategy

There is limited theory generated for how to plan for circumstances of uncertainty, and there are few decision-making concepts on how to respond to these crises (Kassens-Noor, 2019; Parcell, 2020). The COVID-19 pandemic has generated global change; thus, decision-makers are responsible for identifying solutions to the problem. With shifts in airport customer priorities and increased focus on specific areas in a post-COVID-19 world, airports need to immediately adapt to bring existing passengers back to the Airports generate more than 95% of all revenue from two operating sources: aeronautical and non-aeronautical services The aeronautical revenues are a direct function of traffic and include passenger charges from passengers and aircraft-related authorities from aircraft operators. As traffic declines, airports' revenue decreases proportionally. The current crisis creates an unprecedented challenge for the airport industry's financial status (ACI, 2020). The airport business has high fixed costs. In the present day, many airports focus on the relationship with customer service. The airport's atmosphere has changed; they are not focused only on efficiency but also the critical functionality. In the past, the objective of typical airports was to provide safe and highly efficient operations, and their key customers were the airlines. Many tenants exist, such as ground service providers, retailers, parking companies, and government agencies (Nawai, 2017; Tomović et al., 2020). The impact of the COVID-19 crisis removed more than one billion passengers for the whole year 2020, representing a decline of 64.6% of global passenger traffic. It is forecasted to remove additional 4.7 billion passengers by the year-end of 2021 (ACI,

2020). In typical situations, during peak hours, the density of flights, passengers, baggage, and cargo may delay the airline operations work process due to the congestion at the airport (Paethrangsi, 2021). The new standard practice would change the COVID-19 pandemic precaution, airport operations, and customer expectations. The airports adopt measures such as COVID-19 physical distance rules, the necessity of wearing a mask, frequent cleaning of the contacted surfaces, and providing handy alcohol gel for frequent hand washing; these precaution measures have become mandatory for the airports. Kiosk devices with RFID technology are considered a tool to reduce touching and waiting times in check-in procedures. The COVID-19 steps at the airport make the check-in time increase. Air transport may be critical in transporting contaminated people, leading to a massive expansion of coronavirus. Hence, airport operations need adjustments to ensure passengers' and employees' health and safety (Bolat & Ateş, 2020). Similarly, Choi (2021) suggested that the airport strategy should focus on customers' safety and hygiene. The airport operations processes are inevitably changed. The process for passengers' health condition checks will be strict. Airport management enterprises need to understand the trends of customers and airline characteristics to implement operational policies and facilities offered, such as gate allocation, membership services, and common area use (Charernnit & Kankaew, 2020; Choi, 2021)

ACI World (2021) forecasts that the airport industry will generate about $188 billion in 2020 before the COVID-19 outbreak. The impact of the COVID-19 crisis on airport revenues was unprecedented, reducing close to 125 billion USD from airport revenues in 2020. Europe and the Middle East were the most affected regions, which recorded a reduction of 70.5% of their incomes. All airports globally will lose more than 94 billion USD of revenue by the year-end of 2021. In the long run, it is predicted that the global traffic may take up to two decades to return to the time of the pre-COVID-19 period (see fig. 1).

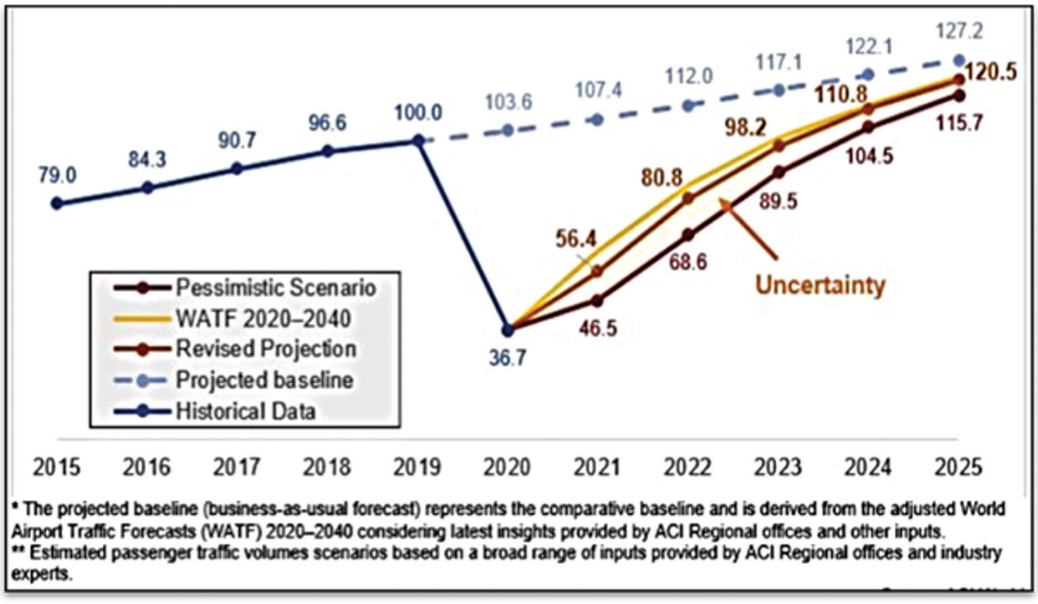

Figure 1 Short term global passenger traffic projection

Source: ACI, Airport Council International (2021)

2. New normal of passenger habits and expectations for air travel during the COVID-19 crisis

The aviation industry is one business that was hit by the coronavirus. Companies worldwide need to adjust themselves to meet customer needs. New standard practice for air travel because of the pandemic of COVID-19 made people aware of the hygiene environment. Nowadays, passengers are more observant, looking for signage and guidance in crowded areas and queues (Nejat, 2021). Many airport operators implement non-touch technologies and self-service to improve passenger processing and long-term cost savings (International Air Transport Association [IATA], 2021; International Civil Aviation Organization [ICAO], 2020). ICAO has set guidance for airports to provide safe air transport during the pandemic, such as delivering pre-flight health and travel history information. The mandatory wearing of masks, the standard operating procedures for cleaning and disinfection of terminal infrastructure, and all equipment such as airport information desks, escalators, lifts, handrails, luggage trolleys, and seats at check-in/ boarding areas.

2.1 Before going to the airport

- Passengers study and perform travel formalities before going to the airport, such as contacting the travel authorization to complete an e-Visa or health information declaration as per local regulation.

It mandated masks and hand sanitizer items for the entire journey. Passengers will ensure that they have these PPE sufficiently.

- Complete check-in processes prior to arriving at the airport. Online check-in, mobile boarding pass, and off-airport baggage tagging is the information that passenger search for to reduce the chance of contact with airport staff and infrastructure.

2.2 When being at the airport

- Passengers prefer using self-service tools, such as boarding passes, baggage tag kiosks, and baggage drop. Using the device to reduce the amount of contact with airport staff and infrastructure has become a norm for people (IATA, 2021).

- Wash or sanitize hands frequently with soap and water or alcohol-based hand sanitizers.

2.3 During on board

- Passengers always wear a mask all time during the flight. They avoid unnecessary movement during the flight.

2.4 When arriving at the terminal

- Compliance with the non-touch measures. The signs and guidance, as well as public announcements to remind passengers to wear face masks, keep physical distance, and frequently wash their hands, made passengers confident that the airport's area is safe and standard meeting (ICAO, 2020).

- Self-service and non-touch service is a new requirement that passenger expects from airport operators. Also, hand sanitizers must be available where the passengers interact with surface touch.

- Passengers will be aware of keeping physical distance wherever possible. Additionally, they will not touch eyes, nose, or mouth, especially after touch with public everyday use objects.

The aviation industry is one business that the Airport operators hit must adapt to the new standard practices business and arrange the operating procedures to suit the regular habits of the passenger to keep business running.

3. Measures against COVID-19 infection by airport operators

The airport measures against COVID-19 infection in this study were based on four international airports. These are operated by The Airport of Thailand (AOT); these airports include Suvarnabhumi International Airport (BKK), Don Mueang International Airport (DMK), and Chiang Mai International Airport (CNX), and Phuket International Airport (HKT) (Airport of Thailand, 2020). The AOT has implemented measures to prevent and control the spread of COVID-19. The airports strengthen the management of flights coming from countries severely affected by COVID-19. The actions comply with the following regulations by the Ministry of Public Health and the Civil Aviation Authority of Thailand.

Passenger safety measures

- Every passenger must wear masks before entering the airport terminal.

- Passengers must declare their health condition by registering personal information and means of contact.

- The airport operators provide physical distancing arrangements at the whole terminal with signage, floor markers, and public announcements.

- Equip the thermometers to screen body temperature of all passengers and the airport personnel in proper places in the terminal.

- Provide alcohol-based hand sanitizers in all service areas.

Airport operations measures

- Airport operators will do hourly passenger facilities disinfectant cleaning.

- Adapt the airport procedures to arrivals and departure, such as encouraging self-servicing, electronic ticketing, and E-kiosks for check-in.

- Using floor markers and signage to manage queues and waiting areas to avoid crowded passengers.

- The process of passenger boarding/ deplaning by seat row numbers and shuttle buses is conducted by smaller groups.

Safety measures for staff who work at the airport.

- Staff must always wear masks when in the airport terminal.

- All staff must not have a travel history to or live in high-infected areas within the period the government designated.

- The airports are using partition wall panels to separate staff from passengers.

- Staff are using the online training and VDO conference for meetings.

METHODOLOGY

This research employed a mixed method approach—theories and notions about the new standard and airport operating procedures after COVID -19 were applied. For qualitative research, the authors interviewed the key informants: airport management, managerial level companies, and employees working at the airport. For the quantitative analysis, the populations were companies' employees and passengers with experience using the airport within a year. The researcher selected 300 samples and collected data with questionnaires after being tested a content validity and reached an IOC of 0.60-1.00. We found the reliability of the gauge that the Cronbach's alpha of the observed variable used in this research was between 0.739-0.964 and 0.985 as a whole; then, the data were analyzed by a statistic.

1. Population and Sampling

This research randomly sampled to establish a population group by separating sampling into two groups. The first group is 150 frontline personnel who work at the airport, including airline staff, airport workers, retail employees, and the personnel in service providers at the airport. The second group is 150 customers with experience using the airport during the COVID-19 pandemic or within a year. A sample of 400 people were drawn using a stratified method. Data were collected with questionnaires and were analyzed employing descriptive statistics.

2. Data collection

For primary data, the researcher distributed 340 questionnaires to the respondents by cluster sampling to each group; there were 300 sets of completed questionnaires in return. For secondary data, information and data were reviewed from related theories, journals, books, and articles on the internet. For the qualitative research, semi-structured interviews were conducted with 15 managers and supervisors relevant to the aviation industry.

3. Data analysis

The researcher examined the data, checked the validity of the questionnaire, and selected correct and complete questionnaires. Then separated the incomplete questionnaire. Encode the entire questionnaire, then put the data in the questionnaire. Analyze 300 sets in the excel program to find the research analysis results. The researcher made

the tables to compare data between two groups of samples with quantitative methods. Then confirm the quantitative research with the qualitative research approach.

RESULTS CONCLUSION AND DISCUSSION

The study showed that the COVID-19 pandemic strongly influences passenger behaviors. Also, the airport work procedures during the crisis have changed from the standard methods. In the past, most airport and airline personnel had to contact passengers closely. After the pandemic and the recommendation from WHO about physical distancing, the airports need to implement disinfection measures such as check-in, security, immigration, customs, and gate areas. The Airport of Thailand (AOT, 2020) complied with the government's relevant regulations for all airports' operations in the passenger, staff, and facilities measures, as shown in Table 1.

Table 1 Passengers' journey process and airport staff working process

Area	Passengers	Airport Personnel
Terminal screening	o Use of face masks within the airport at all time o Pre-travel testing o Follow the preventive measures of the airports o Pass through the disinfection equipment o Register through a mobile phone app	o Use integrated pest management to prevent and eliminate pests and germs o Wear personal protective equipment when on duty o Have body temperature checked o Give passengers advice and monitor physical distancing o Display preventive measures at public touchpoint area.
Check-in area	o Increasing rate of web/ internet check-in o Increasing self-check-in, self-bag-drop o Value self - service kiosks	o High touchpoints cleaning o Disinfect equipment before returning it o Provide hand hygiene to minimize transmission risks o Open/close certain lens to ensure certain spaces between passengers

Table 1 (continued)

Area	Passengers	Airport Personnel
Security control	o Prefer usage of automated screening system o Avoid crowded areas o Comply with the safety measures and queueing rules	o Monitor the screening no need to pat-down passengers and inspect their baggage. o Frequent cleaning and disinfection of frequently touched surfaces o Monitor the process from a distance o Rearrange passenger flows with signage o Arrange queuing at least 1.5 meres apart
Immigration control	o Comply with measures and laws o Frequent usage of hand gel o Present the health certificate	o Open and monitor extra lines to prevent long queues o Provide protective panels o Frequently clean equipment o Wash hands frequently
Boarding process	o Respect the principals and directions including specific announcement o Keep spaces and rooms for individuals	o Observe physical distance between individuals. o Frequently clean counters o Organize boarding by small groups (according to seat rows) o Prepare additional buses for boarding (If needed)
Baggage reclaim area	o Respect physical distancing. o Comply with measures of the airlines	o Use only 1 flight per carousel at a time o Organize queuing o Communicate passenger flow clearly o Use of floor surfaces or markings to keep distancing

During the COVID-19, the airport operating process for passenger departure and arrival strengthens the verification procedures for passengers' health conditions. Passenger departure flow comprises six steps. Step one starts with communicating to passengers to acknowledge the procedure changes and time consumed. Entering the airport must screen, check-in, and baggage dropping by encouraging passengers to use self-service and E- Kiosk, security control, immigration control, and boarding gate entrance by smaller groups and markings to keep distance. Even though the arrival flow is not much different from the previous COVID-19 pandemic, the procedures are still strengthening in passenger health condition verification. The arrival flow steps comprise immigration control, baggage reclaims, customs, and the laser one passenger exit the terminal (see fig.2).

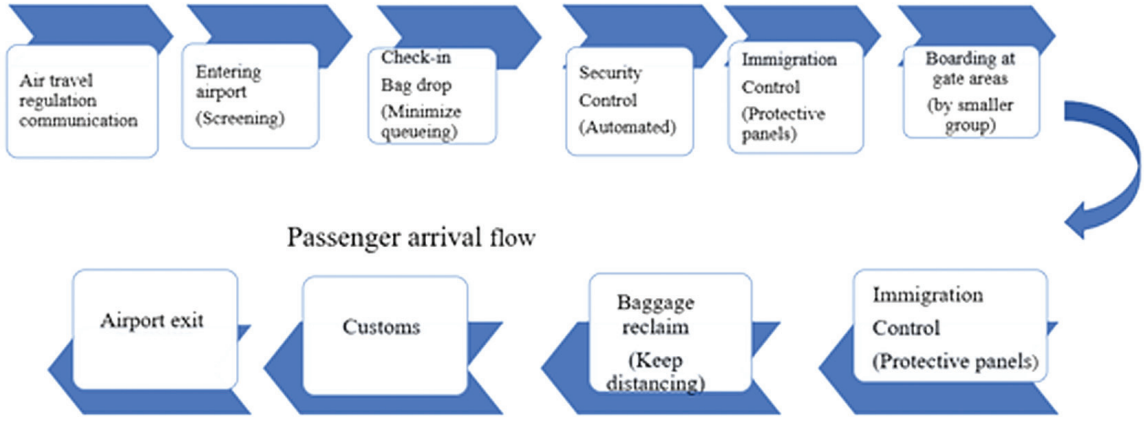

Figure 2 Departure and arrival airport operating process

The summary of respondents' demographic profiles showed that it divided the participants into two groups, group 1 was 150 airport personnel, and group 2 was passengers who had experience using the airport within a year (during the COVID-19 pandemic). Both groups' ages range from 32 to 56 years old. They are 64.4% female and 35.6%, male. Regarding the two working experiences, 52% of the participants have worked with the company for over three years, so they can reflect on the airports' new standard practice (see table 2)

Table 2 View from combined two groups of respondents (frontline personnel and passengers) on the new normal airport characteristics.

Customer preferences	Mean Group 1	Mean Group 2	Mean Combined two groups	Rank
1. Technology; implement non-touch technologies, using biometric solutions for border clearance, self-boarding passes, baggage scanners, smart tag & RFID	4.71 (S.D.0.67)	4.60 (S.D. 0.49)	4.655	1
2. Hygiene environment; hygiene ambient, occupancy of terminal areas, provide greater confident about security and safety, increased sanitization devices	4.43 (S.D.0.58)	4.52 (S.D. 0.54)	4.475	2
3. Service; quick and reliable service, assistance with special needs, friendly polite and helpful staff	4.45 (S.D.0.56)	4.44 (S.D. 0.56)	4.445	3
4. Operation; manage queues and gathering zones to comply with social distancing, E-Kiosk, well-marked baggage flow and passenger flows control.	4.10 (S.D.0.61)	4.41 (S.D. 0.57)	4.255	4

Table 2 illustrates the results of frontline personnel and passengers showed that the essential features of the new standard airport practice were; (1) technology with a mean of 4.655 and a standard deviation of 0.564; which includes implementing non-touch technologies, using biometric solutions for border clearance, self-boarding passes, and baggage scanners, smart tag & RFID (2) Hygiene environment with the mean of 4.475 and the standard deviation of 0.556; which including hygiene ambient, which including providing greater confident about security and safety, sanitization devices, (3) service with the mean of 4.445 and the standard deviation of 0.561; which including quick and reliable service, help with special needs, friendly polite and helpful staff, (4) operations with the mean of 4.255 and the standard deviation of 0.589. Sub-factors in this criterion manage queues and gathering zones to comply with social distancing, E Kiosk, well-marked baggage flow, and passenger flow control.

DISCUSSION

New standard practice for airports is challenging, and the financial impact on airports is massive. The airports shut down led to drop-in traffic, margin decreased, but the costs of physical distancing measures and cleaning increased (CopOpt, 2020). The results demonstrate that findings from this study appear to be similar to those from Nejat (2021) that understanding customer requirements trends will help the airports adapt their current operations and improve processes and planning. The airport operators should manage the occupancy of terminal areas such as boarding gates, lounges, restrooms, and space around baggage claim to provide customers with greater security and safety. The actions of the airport operators to ensure passenger safety and non-touch technology are the keys to regaining and maintaining passenger confidence when using airports (Nejat, 2021). The excellent road and sea transport conditions drive the nation's economic growth (Raimnekov & Syzdykbayeva, 2021). Similarly, the airport's convenience will enhance air transportation. The frontline personnel also suggested that the operators consider the employees' health and safety, such as physical distancing workspace, different group break rooms provided, sufficient PPE, and increased sanitization devices.

CONCLUSION

The research result showed that the new practice of airport operations in

Thailand during the COVID-19 pandemic changed passengers' and airport personnel's working procedures. From the viewpoints of customers and airport personnel, the new standard practice for airport operations amid the COVID-19 crisis comprises four factors: technology, environment, service, and process. The top priority is technology use, such as implementing non-touch technologies, biometric solutions for border clearance, self-boarding passes, baggage scanners, smart tags & RFID. Both groups of respondents rated as important as the second place is the hygiene environment, which comprises hygiene ambient, occupancy of terminal areas, greater confidence about security and safety, and increased sanitization devices. These criteria made passengers feel safe when traveling and at an airport. The respondents rated "The "Service" in third place of four, and the requirements in services are quick and reliable service, help with special needs, friendly, polite, and helpful staff. Furthermore, they rated the importance of operations as the last one. The operation criterion comprises managing queues and gathering zones to comply with social distancing, E-Kiosk, well-marked baggage flow, and passenger flow control. Regarding aim no. 3, The new standard procedures for airport operations proposed from this research are 1) implement technology such as adopting biometric systems for facial recognition to identify passengers. Self-boarding passes and an automatic toilet flushing system to reduce passenger interaction and objects touched. 2) Add the processes to ensure physical distancing in queues and holding areas. Increase the speeding up of check-in times and reduce queueing to limit the number of people in particular areas. 3) Passengers' new regular hygiene habits, so the airport operators must provide hygiene and a clean environment, such as offering cleaning material and hand sanitation dispensers in the airport areas. Airports with high traffic volumes have higher incomes from non-aeronautical charges (ICAO, 2022). The sharp decline in airline flights led to several passenger decreases, affecting the airports' financial health (Remencova, & Novaksedlackova, 2021). There are employees of various companies working at the airport, such as airport workers, airline staff Ground Service Management Agents, and employees of retail stores. Therefore, the airport can rearrange the new facilities and areas to be COVID-19 community

health care centers or COVID-19 test centers for passengers and staff working at the airports. The availability and implementation of passenger antigen tests, rapid PCR tests, and even community health care will enable travel from one country to another (Nejat, 2021). The airport should consider delaying infrastructure investment because the volume of traffic decreases and enhances revenues, such as online duty-free shops to suit passengers' habits. This research leaves some gaps in expanding the study in detail on the trends in airport operations and airport management strategies after the COVID-19 pandemic.

Limitation of the study and future work.

Like most research, this study has some limitations that provide areas for future research. Though the proposed methodology achieves its goal of exploring the practice of airport operations in Thailand during the COVID-19 pandemic, the study is limited to specific airports. Thus, other airports must be considered to generalize the results to all standard practice operations. The next step in this study would be to research what resources need to allocate to develop the airport operations to aid the stakeholders in mapping customer requirements with the new standard practice.

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